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This question of the practicability of using the Kavangire is now under consideration by Professor Earle and his co-workers in Porto Rico, and at the same time further observations will be made upon the immunity of this variety to the mottling disease. Unfortunately, the available supply of plant cane of Kavangire in Porto Rico is limited. It will take a number of years to propagate enough of this variety to make it available for general planting. In the meantime its adaptability to the Porto Rican climatic and labor conditions will be determined. It appears to be a strong ratooner and to have considerable resistance to root disease, borer and stem rot. If these indications prove true Kavangire should enable the grower to keep his fields in profitable production longer without replanting than is possible with the varieties now in general use. This will reduce the cost of production, even though the habit of growth and quality of the cane should make it a somewhat more expensive variety to handle and to mill.

C. O. TOWNSEND

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THE USE OF POISON GAS

TO THE EDITOR OF SCIENCE: In regard to the article on "Poison Gases" by Major West, in your issue of May 2, 1919, the statement on p. 415 that at the Hague Conference of 1899 "the governments represented—and all the warring powers of the present great conflict were represented—pledged themselves not to use any projectiles whose only object was to give out suffocating or poisonous gases" is not correct. Twenty-six nations voted on the question, all but two being in the affirmative. The dissenting two were Great Britain and the United States. At the conference of 1907, Great Britain gave way and signed, but the United States refused. The reasons for the action of the United States are set forth clearly and, in my opinion, unanswerably by Admiral Mahan, the leader of the U. S. delegation, in a formal statement that he made on the occasion.

HENRY LEFFMANN

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SCIENTIFIC BOOKS

RENAISSANCE ANATOMY

AMONG the interesting papers published in "Studies in the History and Method of Science," edited by Charles Singer, and printed in Oxford by the Clarendon Press, 1917, is an important contribution of fundamental interest to students of the history of anatomy. The entire series of essays has been previously reviewed by Dr. Charles Dana¹ and we may confine our attention to Dr. Singer's "Study in Early Renaissance Anatomy," which occupies 84 pages of the book.

This study is subdivided:

- I. Anatomy in the Fourteenth and Fifteenth Centuries.
 - II. Bolognese Works on Anatomy.
 - III. Hieronymo Manfredi, Professor at Bologna, 1463-93.
 - IV. The Manuscript *Anatomy* of Manfredi.
 - V. Translation of selected Passages from the *Anothomia*, with Commentary.
 - (a) The Brain, Cranial Nerves, etc.
 - (b) The Eye.
 - (c) The Heart.
- Italian Text of the *Anothomia*.

There is little that is new in the first two sections, although there is much interesting material, accompanied by a wealth of bibliographic details which will save the worker in anatomical history much time and labor. The discussion is interesting and instructive; the illustrations, which are well reproduced, having been chosen from the works of such early writers as Henri de Mondeville (1314), Bartholomæus Anglicus (1482), Guy de Chauliac (1430?), Mondina (1493), Ketham (1495) and many other writers. Many of these illustrations have been previously given by Locy,² Sudhoff,³ Choulant⁴ and others.

¹ *Annals of Medical History*, I., no. 4, 1917 (issued February, 1919).

² "Anatomical Illustrations before Vesalius," *Jour. Morphol.*, 1911, XXII., no. 4.

³ "Ein Beitrag zur Geschichte der Anatomie im Mittelalter," Leipzig, 1908.

⁴ "Geschichte der anatomischen Abbildungen," Leipzig, 1852.

He refers in an interesting way to the tangled triangle between Leonardo da Vinci, Vesalius and Marc Antonio della Torre (1473-1506) which has been discussed extensively by McMurrich, Forster and others. Singer speaks of the "projected treatise of Marcantonio della Torre" which was to be prepared in conjunction with Leonardo, giving an interesting reference⁵ to support his conclusion. Elsewhere he says: "Leonardo da Vinci's . . . anatomical researches were without influence, and remained long unnoticed," thus casting doubt on the supposition that these illustrations had influenced the work of Vesalius.

The short biographical sketch of Hieronymo Manfredi (1430-1493) is without particular interest and is doubtless duplicated in all essentials many times in the biographical sketches given in the "Biographie Médicale" and in the biographical dictionary of Gurlt and Hirsch which is largely based in the "Biographie Médicale."

Manfredi's anatomical views were modified by the astrological learning so prominent in Bologna at that time. The matter of greatest interest about his "Anothomia" however is that it represents the breaking away from the old Galenic anatomy, which was based on calves, dogs and other mammals, and applied without question to man. Manfredi's anatomy, while only a compilation, it is true, is yet based on a careful study of many writers. "It is in the main a rearranged and on the whole improved Mondino, but amplified by reference to translations from Galen, Rhazes, Haly Abbas and Avicenna."

Perhaps other writers were also used. It is not an original work, not yet a piece of research, although he had confirmed some of his descriptions by actual dissection. However, "It is perhaps the first complete treatise on its subject written originally in the vernacular," and represents anatomy as taught at Bologna at the end of the fifteenth century.

The translations of portions of the text,

⁵ G. Cervetto, "Di alcuni illustri anatomici italiani del decimoquinto secolo," p. 46, Verona, 1842.

made by A. Mildred Westland, are interesting and instructive. Manfredi's discussion of the scalp, skull and meninges reads remarkably like a modern text-book of anatomy, the medieval terms *almochatim* and *lauda* being no worse than those of the BNA.

It may be interesting to give Manfredi's discussion of the chorioid plexus, which recalls, in a way the ideas held later by Descartes and Swedenborg, concerning the pineal body.

To the side . . . is another thing like a subterranean worm, red as blood, yet tethered by certain ligaments and nervelets. And this worm when it lengthens itself closes these passages, and thus blocks the path between the first ventricle and the second. Nature has wrought it thus, so that when a man wills he may cease from cogitation and thought; and similarly when, on the other hand, he would think and contemplate, this worm contracts itself again and opens these passages and thus frees the way between one ventricle and another.

Manfredi gives the customary six cranial nerves, all that were known to the ancients. His discussion of the anatomy of the eye shows the strong influence of the Arabians who were excellent ophthalmologists, while his description of the heart follows closely that of Mondino.

In the opinion of the reviewer there have been few studies of more fundamental importance to the study of anatomical history than the present one by Dr. Singer. Sudhoff's study already referred to, the studies of Stieda, Toply and Jastrow on the "Beginnings of Anatomy" among the ancient Chaldeans, Babylonians and Romans are to be mentioned in this connection. Important contributions to anatomical history are difficult to produce, since it requires great linguistic ability, access to large collections of manuscripts and books, and some knowledge of anatomical structure. Such a combination, rare and difficult as it is, is found in the person of Dr. Charles Singer who is doing notable work in the advancement of knowledge of ancient medical literature through

the publications at Oxford University, and in the pages of the *Annals of Medical History*.

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SPECIAL ARTICLES

NOTES ON CERTAIN CONGLOMERATIC STRUCTURES IN LIMESTONES IN CENTRAL PENNSYLVANIA

THE following notes may be of value to those interested in the origin of limestone conglomerates in the Nittany valley, Pennsylvania.

Last summer while collecting extensively from the Stonehenge and Axemann limestones, fossiliferous members of the Beekmantown series, in the Bellefonte quadrangle the writer found repeated occurrences of fossils in the conglomeratic, or pseudo-conglomeratic beds. In some cases the fossils were sparingly disseminated among structures prevailing conglomeratic and apparently of inorganic origin. In other instances fossil layers themselves assumed a conglomeratic appearance in cross-section, especially if slightly weathered. It was often impossible to determine in the field whether a structure, apparently conglomeratic, owed its superficial appearance to a strictly inorganic origin or rather to an assemblage of fossils in a more or less clastic fashion. Gradually the impression grew upon the observer that fossils worked over mechanically in some way prior to burial formed the basis of some of the so-called limestone conglomerates. Anent this possible method of formation the following observation is offered for what it is worth.

Several years ago the writer had occasion to collect fossils from the Warrior limestone (Buffalo Run limestone of Moore and Walcott) of Upper Cambrian age and found one outcrop which could be interpreted as the result of the mechanical breaking up of an organism. A small reef or cluster of *Cryptozoon*, seen in cross-section, appeared broken or flaked off in such a manner that the cemented rubble much resembled "edgewise" conglomerate. The area on the rock surface

was small, but the occurrence is deemed significant.

Caution should be used by the field worker in interpreting probable conglomeratic structures in these limestones, as a cross-sectional view alone may be misleading unless the possibility of fossils is constantly kept in mind.

The paper by Mr. Richard M. Field¹ on these obscure structures deserves commendation. His many field observations and summary of previous literature render the work a distant contribution to knowledge whether or not one agrees with his theory of origin. The reader is referred to this paper for a full treatment of the subject.

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MINUTES OF THE COMMITTEE ON POLICY OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE Committee on Policy met on Monday, April 28, 1919, at 5 P.M., at the Cosmos Club, with Mr. Nichols in the chair, and Messrs. Woodward, Merriam, Humphreys, MacDougall, Cattell, Noyes, Ward and Howard also present.

On motion, Professor Dimon Kellogg, of Columbia, Mo., was elected to membership, made a fellow and, on nomination from the sectional committee of Section A, was elected vice-president and chairman of that section.

On motion, Dr. David Jayne Hill, was elected to membership, made a fellow and, on nomination from the sectional committee of Section I, was elected vice-president and chairman of that section.

On motion, Dr. C. Kenneth Leith, of Madison, having been nominated by the sectional committee of Section E, was elected as vice-president and chairman of that section.

On motion, A. S. Langsdorf, of Washington University, was elected as secretary of the council in place of Dr. J. F. Abbott, resigned.

¹ "A Preliminary Paper on the Origin and Classification of Intraformational Conglomerates and Breccias," Richard M. Field, *Ottawa Naturalist*, vol. 30, nos. 2-6, May-Sept., 1916, pp. 29-36, 47-52, 58-66.